

**Louisiana Department of Environmental Quality
Office of Environmental Services**

**STATEMENT OF BASIS
For
Activity Number: PER20030059
Permit No. 2008-V3**

**Polyethylene A Plant
Agency Interest No. 1409
The Dow Chemical Company – Louisiana Operations
Plaquemine, Iberville Parish, Louisiana**

I. APPLICANT

Company

The Dow Chemical Company – Louisiana Operations
Post Office Box 150
Plaquemine, Louisiana 70765

Facility

Polyethylene A Plant
21255 Highway 1, Plaquemine, Iberville Parish, Louisiana
UTM Coordinates: 670.30 kilometers East and 3355.4 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

Incoming ethylene is mixed with recycled ethylene gas and then compressed. An initiator is used to start the polymerization reaction. The polyethylene product is extruded, pelletized and transferred to hoppers or silos at the product storage warehouse. The polyethylene pellets are shipped to customers in bags, boxes, railcars, or trucks. Unreacted ethylene is recovered and recycled.

The Polyethylene A Plant is a part of the The Dow Chemical Company – Louisiana Operations. Active permits for the operations at the facilities are listed as follows:

Permit Number	Units or Sources	Date Issued
2007-V2	Glycol I Plant	December 13, 2006
2008-V2	Polyethylene A Plant	October 4, 2001
2024-V3	Light Hydrocarbons III Plant	September 13, 2006
2025-V1	Vector SBC Plant	May 12, 2003
2048-V0	Polyethylene C Plant	March 1, 2002
2179-V4	Polyethylene B Plant	August 8, 2005
2188-V0	Solvents/EDC I Plant	January 30, 2004
2200-V1	Chlorinated Polyethylene Plant	December 1, 2004
2227-V4	Cellulose Plant	December 28, 2006
2267-V2	Power & Utilities Plant	August 28, 2006

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Permit Number	Units or Sources	Date Issued
2285-V2	Vinyl II Plant THROX Boilers	October 2, 2006
2573-V3	Chlorine/Cell Service Plants	August 23, 2003
2665-V6	Vinyl II Plant	April 2, 2004
2037-V0	Chlorinated Methanes Plant (CMP)	March 10, 2005
2203-V1	Glycol II Plant	June 20, 2005
2255-V0	Light Hydrocarbons II Plant	January 10, 2006
2235-V0	Railroad Tank Car Cleaning Facility	January 18, 2006
2190-V0	Environmental Operations Plant	May 31, 2006

III. PROPOSED PERMIT / PROJECT INFORMATION

Proposed Permit

A permit application and Emission Inventory Questionnaire dated November 18, 2003, were submitted requesting a Part 70 operating permit renewal.

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, and in the local newspaper. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List. The application and proposed permit were submitted to the Iberville Parish Library. The proposed permit was submitted to US EPA Region 6. All comments will be considered prior to the final permit decision.

Project description

Dow requests a Part 70 operating permit renewal for the plant. There is no physical plant modification at this time. Emissions from several piece of equipment were recalculated to reflect current operating conditions.

Permitted Air Emissions

Permitted emissions from Polyethylene A Plant in tons per year are as follows:

Pollutant	Permitted	Proposed	Change
PM ₁₀	0.23	0.23	-
SO ₂	0.01	0.01	-
NO _x	1.50	1.50	-
CO	2.53	2.54	+ 0.01
VOC	247.31	242.25	- 5.06
Fluorocarbons	18.07	18.06	- 0.01

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Prevention of Significant Deterioration (PSD) Applicability

Criteria pollutants do not increase above the PSD significant levels. PSD analysis is not required.

Maximum Achievable Control Technology (MACT) requirements

TAP emissions from a gasoline tank are controlled as required by LAC 33:III.2103 which were determined to be MACT. No additional control was determined as MACT for TAP emissions from the lab vent.

Air Modeling Analysis

Emissions from the incinerator are not expected to cause or to contribute to any National Ambient Air Quality Standards (NAAQS) or Ambient Air Standards (AAS) exceedances.

Dispersion Model Used: (None)

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the proposed Part 70 permit. The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

IV. PERMIT SHIELDS

The Permit does not include any Permit Shields

V. PERIODIC MONITORING

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

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VI. APPLICABILITY AND EXEMPTIONS OF SELECTED SUBJECT ITEMS

ID No:	Requirement	Status	Citation	Explanation
EQT499 - EQT502 EQT504 - EQT509 EQT512 - EQT515 EQT517 - EQT547	LAC 33:III.2115 - Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.b	Vents from LDPE plant with ethylene emissions < 1.1 lbs/1000 lbs of product
EQT554, EQT573, EQT574, EQT575 EQT579 - EQT582	LAC 33:III.5109.A – MACT requirements	Does not apply	LAC 33:III.5109.A	Emits Class III TAP only. MACT is not required
EQT503, EQT510, EQT511, EQT516, EQT552, EQT576, EQT577	LAC 33:III.2115 - Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.b	Vents from LDPE plant with ethylene emissions < 1.1 lbs/1000 lbs of product
	LAC 33:III.5109.A – MACT requirements	Does not apply	LAC 33:III.5109.A	Emits Class III TAP only. MACT is not required
	40 CFR 60 Subpart DDD	Exempt	40 CFR 60.560(g)	TOC concentration in individual vents stream < 0.10 wt%
EQT548	LAC 33:III.1503.C. Standards for SO ₂	Exempt	LAC 33:III.1503.C	SO ₂ emissions < 250 tons/year
	LAC 33:III.1511 CEM for SO ₂	Exempt	LAC 33:III.1511.A	SO ₂ emissions < 100 tons/year
	LAC 33:III.5109.A – MACT requirements	Does not apply	LAC 33:III.5109.A	Emits Class III TAP only. MACT is not required
	40 CFR 64 – Compliance Assurance Monitoring	Exempt	40 CFR 64.2(b)(1)(vi)	Subject to other continuous monitoring requirements
EQT553	LAC 33:III.2107 – VOC Loading	Does not apply	LAC 33:III.2107.A.1	Load only to containers with volumes < 200 gals
	LAC 33:III.2131 – Gasoline Tanks	Exempt	LAC 33:III.2131.D.3	Throughput < 120,000 gallons/year
EQT555, EQT556	LAC 33:III.2103 Storage of VOC	Does not apply	LAC 33:III.2103.A	Vapor Pressure < 1.5 psia
EQT557	LAC 33:III.2115.B Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.d	VOC emissions < 100 lbs/24 hours
EQT558 - EQT563	LAC 33:III.2115 - Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.b	Vents from LDPE plant with ethylene emissions < 1.1 lbs/1000 lbs of product

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ID No:	Requirement	Status	Citation	Explanation
EQT564	LAC 33:III.2115 - Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.b	Vents from LDPE plant with ethylene emissions < 1.1 lbs/1000 lbs of product
	40 CFR 60 Subpart DDD	Exempt	40 CFR 60.560(g)	TOC concentration in individual vents stream < 0.10 wt%
EQT565 - EQT572	LAC 33:III.2109 – Oil/Water Separation	Exempt	LAC 33:III.2109.B.3	Vapor Pressure < 0.5 psia
EQT578	LAC 33:III.2107 – VOC Loading	Does not apply	LAC 33:III.2107.A.1.a	Maximum daily throughput < 20,000 gals
	LAC 33:III.5109.A – MACT requirements	Does not apply	LAC 33:III.5109.A	Emits Class III TAP only. MACT is not required
EQT584, EQT585	LAC 33:III.2115.B Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.d	VOC emissions < 100 lbs/24 hours
EQT592, EQT595, EQT597 EQT606 - EQT610	LAC 33:III.2103 Storage of VOC	Does not apply	LAC 33:III.2103.A	Volume < 250 gallons
	40 CFR 60 Subpart Kb	Does not apply	40 CFR 60.110b(a)	Volume < 20,000 gallons
EQT593, EQT594, EQT596, EQT602, EQT603, EQT604, EQT605, EQT613	40 CFR 60 Subpart Kb	Does not apply	40 CFR 60.110b(a)	Volume < 20,000 gallons
EQT598, EQT599, EQT600	LAC 33:III.2103 Storage of VOC	Does not apply	LAC 33:III.2103.A	Vapor Pressure < 1.5 psia
	40 CFR 60 Subpart Kb	Does not apply	40 CFR 60.110b(a)	Volume < 20,000 gallons
EQT601	LAC 33:III.2103 Storage of VOC	Does not apply	LAC 33:III.2103.A	Vapor Pressure < 1.5 psia
	40 CFR 60 Subpart Kb	Does not apply	40 CFR 60.110b(b)	Volume < 40,000 gallons
The above table provides explanation for both the exemption status or non-applicability of a source cited by 2 or 3 in the matrix presented in Section X of the permit				

VII. STREAMLINED REQUIREMENTS

The Permit does not include any streamlined requirements.

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VIII. GLOSSARY

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring rule – A federal air regulation under 40 CFR Part 64

Carbon Black - A black colloidal substance consisting wholly or principally of amorphous carbon and used to make pigments and ink.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Duct Burner – A device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Federally Enforceable Specific Condition - A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

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- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;
- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Heat Recovery Steam Generator (HRSG) – A steam generator that recovers exhaust heat from a gas turbine, and provides economizing and steam generation surfaces.

Hydrogen Sulfide (H₂S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NESHAP - National Emission Standards for Hazardous Air Pollutants –Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

NSPS - New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60

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Organic Compound - Any compound of carbon and another element. Examples: Methane (CH₄), Ethane (C₂H₆), Carbon Disulfide (CS₂)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.